

AMENDMENTS TO THE SPECIFICATION

Please amend the specification as shown below.

Please amend the paragraph beginning on page 1, line 6, with the following amended paragraph:

This invention relates to an optical device which is applied to a recording and/or reproducing apparatus for recording and reproducing information signals for [a] an optical recording medium such as optical discs, a method for producing the device, and a recording and/or reproducing apparatus employing the device.

Please amend the paragraph beginning on page 1, line 11, with the following amended paragraph:

There has been proposed an optical disc apparatus in which an optical system is arranged on the side recording layer of an optical disc to achieve a high numerical aperture (NA) and hence the high density recording. This optical disc apparatus uses, as an objective lens used in an optical pickup, an optical device having two lenses, such as is shown in Japanese Laying-Open Patent Publication H-10-123410, as light converging means.

Please amend the paragraph beginning on page 3, line 9, with the following amended paragraph:

With the lens set, made up of two lenses, that is the forward and rear lenses, as described in the aforementioned Publication, it is possible to increase the numerical aperture (NA). With this lens set, it is necessary to provide for a constant separation between first and second lenses and for accurate orientation of the second lens with respect to the first lens.

Please amend the paragraph beginning on page 4, line 5, with the following amended paragraph:

Among the lenses used for an optical pickup, there are a plastic lens produced on injection molding of a synthetic resin, a glass lens produced on glass molding, and a glass lens formed on polishing. With these lenses, it is unexceptionally difficult to reduce the radius of curvature to render it difficult to produce a small diameter optical lens. In order to overcome these inconveniences, such a lens having a continuously curved surface, formed by applying the manufacturing method for a Fresnel lens, has been proposed. However, it is still difficult with this proposed method to produce a high precision lens.

Please amend the paragraph beginning on page 6, line 5, with the following amended paragraph:

In the method for the [reparation] preparation of the optical device according to the present invention, a mask material corresponding to the shape of an optical lens is formed on a substrate formed of an optical material and subsequently the mask material is deformed so that its surface area is reduced by heat treatment. An optical lens having a shape conforming to the shape of the mask is transcribed by dry etching on the substrate to produce a hemispherical lens. As the etching gas, a gas mixture of at least one selected from the group of an oxygen gas, an Ar gas and a He gas and a fluorinated carbon gas is used.

Please amend the paragraph beginning on page 6, line 21 and continuing on page 7, with the following amended paragraph:

[Figs.2] Figs. 2 to 8 are cross-sectional views showing a manufacturing process of an optical device according to the present invention, step-by-step, Fig.2 showing a step of forming a layer of a mask material on a substrate, Fig.3 showing a mask forming step, Fig.4

showing a mask deforming step by heat treatment, Fig.5 showing a lens forming step by dry etching, Fig.6 showing a step of forming a light barrier layer, Fig.7 showing a resist layer forming step and Fig.8 showing a light transmitting aperture forming step.

Please amend the paragraph beginning on page 22, line 17, with the following amended paragraph:

The masks 53 are deformed to a round shape, as shown in Fig.20, after which a shape conforming to the shape of the masks 53 is formed in the optical material forming the substrate 51. Specifically, the shape corresponding to the shape of the masks 53 is formed in the optical material forming the substrate 51, using the dry etching method. This forms the hemispherical lens 54 forming the optical device of the present invention.